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10/678,897	10/02/2003	Ashwin Madhwaraj	81862P280	2369

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EXAMINER

BARON, HENRY

ART UNIT	PAPER NUMBER
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2609

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/678,897

Applicant(s)

MADHWARAJ ET AL.

Examiner

Henry Baron

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) is required in this application because the handwritten annotation is not clear. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

2. Claim 42 is objected to because of the following informalities: The claim is dependent on Claim 18, a method rather than a machine-readable media. The Examiner will examine the claim as dependant of Claim 41. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9-12,20-21,32-34, 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oliveira, et al New Preemption Policies for DiffServ-Aware Traffic Engineering to Minimize Rerouting Proceeding of IEEE INFOCOM 2002, N.Y., N.Y. June 23-27,2002

4. With regards to Claim 9 and 41 Oliveira teaches if a link is not within an LCN (logical channel) exhaustion state and a new connection requests more bandwidth than is advertised as being available for a new connection's service category, the bandwidth available is regarded for a new connection as a sum comprised of the addition of: advertised available bandwidth and the total bandwidth reserved on link connections having lower priority than new connection for service category. (696:para 3-5 read service category as class-type (CT) and example in subsequent paragraph and Figure 9 on page 701). Oliveira teaches this in the context of preemption policies for different class types.

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5. Further, with regards to Claim 10 -12, 20-21, 32-34, and 42 Oliveira's preemption policy teaches whether or not the link is able to sustain a new connection depending on whether a bandwidth request for a new connection exceeds the sum disclosed in Claim 9 and further teaches of deciding when the link is not able to sustain a second new connection because second new connection requests more bandwidth than an advertised maximum bandwidth of the link. (696:para 3-5 read service category as class-type (CT) and example in subsequent paragraph and Figure 9 on page 701).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6, 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shabtay et al (U.S. Patent 6895441) hereafter Shabtay, in view of Rom et al, U.S. Patent Application 2003/0236854), hereafter Rom, further in view of St-Amand et al (U.S. Patent 6298059) hereafter Amand.

7. Regarding Claims 1 and 24, Shabtay's teaching are directed to a path reroute mechanism for use in communication networks following a link failure where multiple searches for alternate routing path to restore traffic are made. Each node advertises a Type, Length, Value object (TLV) s that includes bandwidth allocation information. (Abstract). Further, Shabtay teaches that many routing protocols, including ATM PNNI, have the capability of advertising available bandwidth of each link. (4:35-42). Thus, with regards to Claim 1, Shabtay teaches a method, comprising of issuing PTSE information from a node where the PTSE information describes a link within an ATM PNNI network, and the PTSE (e.g. type length values or TLVs) is comprised of a per priority level breakdown of bandwidth reserved on said link (13:35-45 and Figures 6 and 7); and where over-subscription factors in allocating bandwidth (11:50-56 read overbooking) factors can be determined.

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8. However, as Shabtay's focus is on a path reroute mechanism, Shabtay is silent with regard to advertising a per service category breakdown of over-subscription factors, or for that matter, advertising a per service category breakdown.

9. By contrast, St-Amand teaches of ATM virtual channel connections where QoS constitute per service categories. (1:37-50).

10. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to modify Shabtay's PTSE teachings and St-Amand QoS teaching to advertise links with TLVs that have per service category breakdown, and include over-subscription factors as a method or using a machine having a readable medium or processing a sequence of instructions.

11. Such a modification would be motivated in reporting network bandwidth availability with Quality of Service (QoS) (read per service category) specificity, so that the path reroute mechanism can map routes to the finer QoS level, resulting in a more flexible and robust path reroute scheme.

12. With regards to Claims 2 and 25 Shabtay teaches that the PTSE information is a Horizontal Link PTSE information type where messages are exchanged in a peer-to-peer manner. (8:52-57)

13. In reference to Claim 3 and 26, Shabtay's TLVs teach of per priority level breakdown of bandwidth reserved on a link (see Figure 5) and TLVs and sub-TLVs can be adapted to advertise QoS or a per service category breakdown of over-subscription factors. (4:14-22).

14. Regarding Claims 4, 5, 6, 27, 28, and 29 St-Amand teaches QoS or service categories which are defined to include CBR (constant bit rate) typically used for voice, VBR-real time and non real time and UBR (unspecified bit rate) used for low priority traffic. (1:37-50).

15. Claims 7-8 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shabtay et al (U.S. Patent 6895441) hereafter Shabtay, and of St-Amand et al (U.S. Patent 6298059) hereafter St-Amand in further view of Rom et al, U.S. U.S. Patent Application 2003/0236854), hereafter Rom.

16. With regards to Claims 7-8 and 30-31, though Shabtay and St-Amand teach the limitations of independent Claim 1 and 24, neither Shabtay nor St-Amand's teachings are directed to dynamic allocation of link QoS and bandwidth services and therefore neither discloses the concept of logical channel exhaustion.

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17. However, Rom teaches in the art of dynamic allocation of satellite bandwidth of a priority basis for a requested user. Rom further teaches of a link not within a LCN (logical channel) exhaustion state. (1: [0010] read resource available in resource pool).

18. Further Rom teaches of the concept of on a per priority level breakdown of whether or not a connection exists on a link; (7: [0088])) an indication of the actual maximum capacity of the link and an maximum capacity value set equal to zero (Figure 5); a per service category breakdown of actual available capacity on a link and an available capacity value set equal to zero for each of service categories. (Figure 5 and 9: [0115])

19. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to further modify Shabtay's PTSE teachings and St-Amand QoS teaching with Rom's resource dynamic allocation teachings to construct TLVs that advertise information on a per priority level breakdown whether or not a (available bandwidth) connection is available on a link; further to advertise an indication of the actual maximum capacity of the link and, in the event of link saturation, advertise a maximum capacity value set equal to zero; and , as appropriate, set to zero on a per service category breakdown of actual available capacity.

20. Such a configuration would allow for efficient preemption of lower priority services by disseminating link availability information, thus enabling the network to make informed decisions as to which paths are candidates for preemption.

21. Claims 13-19, 22-23, 35-40 and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oliveira, et al New Preemption Policies for DiffServ-Aware Traffic Engineering to Minimize Rerouting Proceeding of IEEE INFOCOM 2002, N.Y., N.Y. June 23-27,2002, hereafter Oliveira in view of Shabtay et al (U.S. Patent 6895441) and further in view of Rom et al, U.S. U.S. Patent Application 2003/0236854), hereafter Rom.

22. Regarding Claims 13-15, 22-23, 35-36,43-44, Oliveira's teachings apply in the case when the link is within an LCN exhaustion state and a second new connection requests more bandwidth than is indicated, (696:para 3-5 and Figure 9 on page 701);

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23. However, Oliveira is silent in teaching the use of bandwidth based on SIG information or a mechanism for broadcast and advertising link states or, in the event that a link is exhausted, setting advertised available and maximum bandwidth to zero

24. By contrast, Shabtay teaches of using bandwidth based on SIG information and to broadcast link states. (4:14-22)

25. Rom teaches of setting advertised available and maximum bandwidth to zero. (9: [0115] and Figure 5).

26. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to modify Oliveira's preemption teachings with Shabtay's PTSE teachings and Rom's resource dynamic allocation teachings and further construct TLVs to advertise information on a per priority level breakdown of whether or not a connection exists on a link.

27. Such a configuration would further disseminate link availability information, enabling the network to make informed decisions as to which paths are exhausted and which are not.

28. Regarding Claims 16-19,37-40, 45,and 46, the sum derived from Oliveira's teaching can be used to decide whether or not a second new connection can be sustained when the second requested connection's sum exceeds the available bandwidth, while lower priority services can be preempted. (696:para 3-5 read service category as class-type (CT) and example in subsequent paragraph and Figure 9 on page 701).

Conclusion

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Baron whose telephone number is (571) 270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bruce can be reached on (571) 272-2487. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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31. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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